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## (54) Entertainment machines

(57) A coin-operated entertainment machine, which may be of the fruit machine kind, has a number of display regions at which are produced, at the end of a game, a combination of fixed visual displays (A, B, C), the aim being for a player to try to obtain a winning such combination.

At the end of a game and before evaluation of the resulting display combination a control facility may become available which can operate automatically (if desired after operation of a control 15) to change the displayed combination with the aim of converting a losing combination to a winning combination.

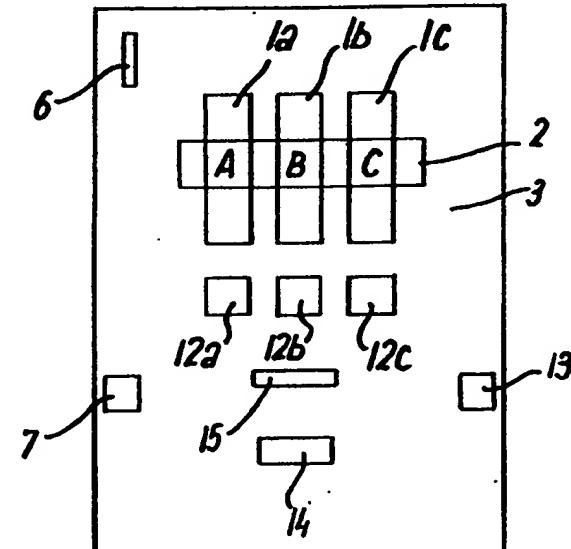


FIG. 1

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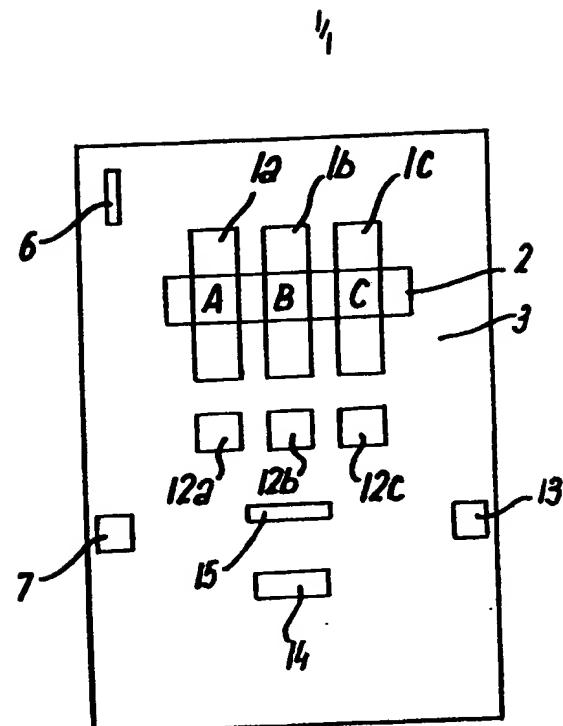


FIG.1

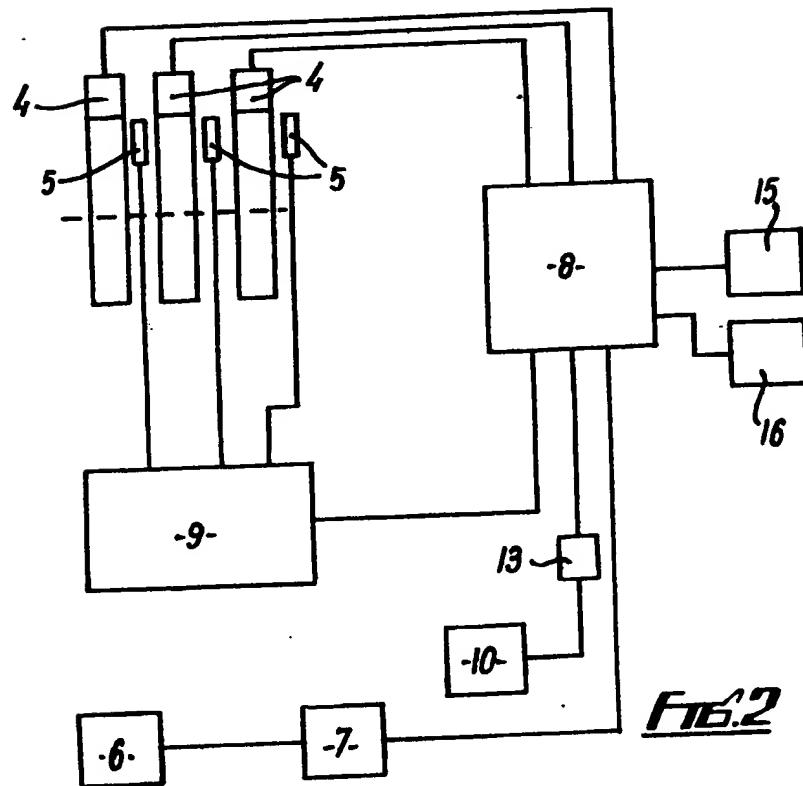


FIG.2

**SPECIFICATION**  
**Entertainment machines**

This invention relates to entertainment machines of the kind, hereinafter referred to as the kind defined, which can be operated by a player at the start of a game, after actuation of a coin or token mechanism of the machine, to initiate performance of first machine operations represented by visual displays of a moving or changing nature at a plurality of display regions on the machine, such first operations terminating at random at the end of the game in a combination of fixed visual displays at such regions, and which is arranged to perform further operations resulting in a win indication in the event that said combination of fixed displays at the end of the game is of a predetermined nature.

With an entertainment machine of the kind defined which is a fruit machine and utilises a plurality of rotatable reels with symbols (such as pictures of fruit) around the periphery of same to provide the visual displays, it is known to provide "nudge" controls which are rendered operable at the end of some (randomly selected) games and can then be actuated by the player to effect limited indexing of one or more of the reels such as to change the symbols displayed therewith. In this way the player can try to convert a losing combination of symbols into a winning combination by the exercise of skill.

This known nudge feature is generally popular. However, in some cases, especially where a player is not specially skilful in the use of the nudge controls the known nudge feature may present little attraction or may even detract from the entertainment value of the machine in so far as the player may not feel able to take full advantage of the opportunity for improving his position with which he is presented.

An object of the present invention is to provide a machine of the kind defined with which the player can be provided with an opportunity of improving the combination obtained without requiring such player to exercise special expertise or skill.

According to the invention therefore there is provided a machine of the kind defined having a control device which is operable to provide a control facility to cause fixed displays at at least one said display region to change to a different fixed display as selected automatically by the machine with the aim of improving the combination of fixed displays at said display regions.

With this arrangement, whenever said control facility is made available and is brought into operation the player may be provided with an opportunity of improving the combination obtained, particularly by converting a non-winning combination into a winning combination, without requiring the exercise of special expertise or skill on behalf of the player. Accordingly, the provision of the said control facility in the machine of the invention can appreciably contribute to the entertainment

value thereof. The said control facility may become available at the end of a game i.e. after performance and termination of said first operations and before performance of said further operations. However, it is also possible for the said control facility to be made available at the start of a game i.e. after actuation of the coin mechanism but before performance of said first operations (or even wholly or partially in substitution therefor). Most preferably the machine of the invention is a fruit machine utilising a plurality (usually three or four) rotatable reels with symbols (such as pictures of fruit) around the periphery of same to provide the moving visual displays, and in this case winning combinations may require the presence of a plurality of symbols of the same kind and the said control may be arranged to change the fixed display to one or some of the display regions to symbols thereof of like kind to the symbol displayed at a first one of the said display regions. However, it is to be understood that the invention is not intended to be restricted to this kind of machine, and the machine of the invention may utilise moving members other than reels, or may utilise a changing display not involving moving members such as a changing pattern of illuminated lamps or a changing vdu display. Also, the display may involve symbols other than fruit and may involve any kind of winning combination thereof.

Most preferably the said control facility is made available in a predetermined and/or random manner at the start or end of some games only. When made available the said control facility may be brought into operation automatically at the appropriate stage. Alternatively and preferably however, the player is provided with some degree of choice in that, for example, the control facility comes into operation only after initiation thereof by a player-operable switch, or a player-operable cancel switch is provided to enable the player to cancel the control facility if desired. Further, where such degree of choice is made available the machine may be provided with additional player-operable control devices such as nudge controls which can be used by the player at the end of the game as an alternative to the said control facility. In a particularly preferred embodiment the control facility is arranged to come into operation after initiation by a player-operable control switch and additional player-operable controls, such as nudge controls are provided for initiation of an alternative facility, the arrangement being such that operation of the said control switch renders inoperable the additional player-operable controls and vice versa.

The invention will now be described further by way of example only and with reference to the accompanying drawings in which:

Fig. 1 is a diagrammatic representation of a front panel of one form of a machine according to the present invention; and

Fig. 2 is a diagrammatic representation illustrating the construction of such machine.

The machine is a fruit machine having three

reels 1a, 1b, 1c, which are rotatable within a housing behind a window 2 in a front panel 13 thereof. Each reel 1 has pictures of fruit (designated A, B, C) at 20 positions around the periphery of same, and rotation of each reel is initiated and also arrested by a solenoid device 4 having a pawl engageable with teeth around the edge of the reel. Actuation of the solenoid 4 causes the pawl to be withdrawn from engagement with the teeth and to cause the reel 1 to rotate freely, and deactuation of the solenoid causes the pawl to drop back into engagement with the teeth to arrest the reel in one of 20 stopping positions thereof in which one of the pictures of fruit on the periphery of same is in precise registration with the window 2. Each stopping position is identified by a respective coded arrangement of holes in a side wall of the reel and the codes are read by a bank of photosensitive devices 5 which receive light from a light source or sources through the holes.

In use, the machine is actuated by a player by insertion of one or more coins or tokens into a coin mechanism 6, and a starter button 7 is pressed to operate a control unit 8 which causes the three reels 1 to be set in rotation for different random periods of time. After the reels have come to rest, the stopping positions thereof are identified by the photosensitive devices 5 in conjunction with data processing circuitry 9 and a win indication is produced which may enable a pay-out mechanism 10 to be actuated by a pay-out button 13 in the event that the identified stopping positions correspond to the display of a predetermined winning combination of fruit (say three fruit of the same kind) through the window 2. Coins or tokens paid out are delivered to the player through an outlet 14.

Three control buttons 12a, 12b, 12c, are arranged respectively beneath the reels 1 on the front panel and at the end of some games, as selected on a random basis, one or more such buttons are rendered operable and are illuminated to indicate such operability to the player. These buttons 12 perform a conventional nudge function that is, the player can press the illuminated buttons one at a time to effect indexing of the associated reels with the aim of converting a non-winning combination into a winning combination.

In accordance with conventional practice the arrangement may be such that the reels are movable stepwise one position at a time (or alternatively in a freely rotating manner) either in one direction only or selectively in either direction (in which case pairs of nudge buttons for forwards and backwards movement may be required) with an overall limitation being imposed on the scope of such movement (in terms of time period or overall number of reel positions changed).

In addition to the nudge buttons 12 there is on the front panel 13 thereof an automatic adjustment button 15. This is rendered operable (and is illuminated whenever the nudge facility is made available). The button 15 and the buttons 12 are available for use optionally by the

player. If the player decides to use the buttons 12 in the manner described above the button 15 is deactivated. Similarly operation of the button 15 deactivates the buttons 12. When the button 15 is operated an automatic adjustment mechanism 16 causes the position of one or more of the reels to be adjusted with the aim of changing the displayed combination of symbols on the winning line from the original losing combination to a new, winning combination, such change being effected automatically and without the involvement of the player. The operation of the mechanism 16 may be such that the attainment of a winning combination is guaranteed and this may be achieved in any suitable manner for example by moving one or two of the reels to positions at which a winning combination is completed with the displayed symbol of the or each other reel. The attainment of a winning combination however need not be guaranteed and instead it is possible for there to be some limitation on the scope of adjustment of the reel positions (as by time period or overall number of positions adjusted) whereby such adjustment mechanism attempts to attain a winning combination but in some cases may not be capable of doing so.

With this arrangement if a player is not sufficiently confident of his expertise with the nudge buttons he can instead operate the adjustment mechanism when this facility is made available whereby he is provided with an opportunity of improving his position without having to exercise any skill in order to take advantage of such opportunity. On the other hand, if the player is confident of his skill he has the option of utilising the nudge buttons as an alternative to the adjustment button and this may be advantageous to the skilled player in so far as he may be able to obtain a winning combination of higher value than that which the adjustment mechanism would produce.

Adjustment of the reel positions with the adjustment mechanism may be achieved in any suitable manner. Thus, one or more of the reels (say the middle and last reel 1b, 1c) may be set in rotation and may continue rotating until the pertaining banks of photosensitive devices 5 determines that such reels 1b, 1c are at positions (or are about to attain positions) at which the fruit on same as displayed through the window 2 are the same as the displayed fruit of the first reel 1a. The reels 1b, 1c can then be arrested in this position. Alternatively, utilising knowledge of the sequence of symbols on the reels, the reels may be indexed stepwise through predetermined numbers of stopping positions with the aim of attaining the nearest or the highest value winning combination within a predetermined maximum number of index steps.

It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiment which are described by way of example only. Thus, for example, the arrangement may be such that the adjustment feature when available comes into

op ration automatically after allowing a short period of time for the player to cancel the automatic adjustment by operating the nudge buttons (or by operating a cancel button which replaces the button 15).

Further, as an alternative to the use of the solenoids 4 and the code-reading sensors 5 it is possible to use, for example, respective stepper motors for driving the respective reels, and a position detection system which responds to and counts stopping positions from datum points on the reels (defined for example by light sensitive devices which receive light through holes in the reels).

Still further, as an alternative to the use of reels it is possible to use a vdu display which stimulates the rotation of reels, and in this case the automatic adjustment mechanism may be operable to interchange displays with adjacent displays in the manner described in our co-pending Application of even date which claims priority from Application No. 8103754. Such Application describes a coin-or token-operated entertainment machine having a plurality of display regions and which can be operated by a player to produce a display of one or more symbols at each of said regions with the aim of attaining a winning combination thereof, said display regions being defined by regions of a vdu screen, characterised in that the machine has a control which is operable, preferably, by a player, to effect replacement of at least one symbol displayed at at least one display region with a symbol displayed on said screen other than at said display region. As described in the specification of such Application the replaced symbol may reappear in or move across the screen to the position previously occupied by the replacement symbol. Also, the entire content of the display region (which may be a vertical group of three or more symbols simulating a section of a reel periphery) may be interchanged together or otherwise replaced.

Further, it is to be understood that operation of the adjustment feature is not restricted to the end of a game as described above. Instead it is possible for the adjustment feature to be made available at the start of a game possibly in conjunction with a "hold" facility. Thus, the arrangement may be such that the adjustment feature can be used at the start of a game and, in the event that a winning combination is thereby obtained this can be held to guarantee a pay-out. If a winning combination is not obtained the player can then play the game in the normal manner.

**55 CLAIMS**

1. A machine of the kind defined having a control device which is operable to provide a control facility to cause a fixed display at at least

one said display region to change to a different fixed display as selected automatically by the machine with the aim of improving the combination of fixed displays at said display regions.

2. A machine according to claim 1, which is a fruit machine utilising a plurality of rotatable reels with symbols around the periphery of same to provide the moving visual displays.

3. A machine according to claim 1, which is a fruit machine utilising a changing vdu display simulating the rotation of reels to provide the moving visual displays.

4. A machine according to any one of claims 1 to 3, wherein said control facility is made available for some games only.

5. A machine according to any one of claims 1 to 4, wherein said control facility when made available is brought into operation automatically.

6. A machine according to any one of claims 1 to 4, wherein said control facility when made available is arranged to be brought into operation only after initiation thereof by a player-operable switch.

7. A machine according to any one of claims 1 to 4, wherein said control facility when made available is arranged to be brought into operation automatically unless cancelled by a player-operable switch.

8. A machine according to claim 6 or 7, having additional player-operable control devices which can be used by the player at the end of the game as an alternative to the said control facility.

9. A machine according to claim 8, which is a fruit machine and wherein said additional player-operable control devices comprise nudge controls.

10. A machine according to any one of claims 1 to 9, wherein said control facility is arranged to operate such that it is ensured that said combination of fixed displays after said control facility operation always constitutes a winning combination.

11. A machine according to any one of claims 1 to 9, wherein limitations are imposed on the operation of said control facility such that it is not ensured that said combination of fixed displays after said control facility operation always constitutes a winning combination.

12. A machine according to claim 2 or 3, or any claim dependent on claim 2 or 3, wherein said control facility is arranged to operate by effecting stepwise indexing of one or more said reels or simulated reels.

13. A machine according to claim 3, or any one of claims 4 to 11, when dependent on claim 3, wherein said control facility is arranged to operate to interchange at least one said fixed display with an adjacent display on the vdu screen.

14. A machine according to any one of claims 1 to 13, wherein said control facility is made available at the end of a game.

15. A machine substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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